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BIBLIOGRAPHY

Abbott, Mary A. Motion Pictures for Different School Grades. Bureau of Publications, Teachers College, Columbia University, New York. 1928

Read entire pamphlet for information on screen preferences of children.

Abrams, A. W. Visual Instruction Equipment. Circular No.4. Visual Instruction Division, State Department of Education, University of State of New York, Albany, 1926.

Read for information and comparative purposes.

Adams, John. Exposition and Illustration in Teaching. New York. 1926 Macmillan.

Read for his development of appreciation technique.

American Academy of Political and Social Science. The Annals; The Motion Picture in its Economic and Social Aspects. (Editors of this volume, Clyde L. King and Frank A. Tichenor.) Vol. CXXVII, 217. Nov. 1926

Read for author's viewpoint, method and conclusions.

Bollman, G. and Bollman, H. Motion Pictures for Community Needs; a practical manual of information and suggestion for educational, religious, and social work. New York, 1922. Henry Holt & Co.

Read as a background. Used as basic reference.

The Cinema in Education: being the report of the psychological investigation conducted by special sub-committees appointed by the cinema commission of enquiry established by the National Council of Public Morals. James Marchant, editor, London, 1925. George Allen & Unwin, Ltd.

Read for information and comparative purposes.

Dana, John Cotton. Modern American Library Economy as illustrated by the Newark, New Jersey, Free Public Library. The Picture Collection. Revised. 1917

Read pamphlet for information on value of visual aids and possibilities of co-oporation in use of motion pictures between a public library and public schools.

Dorris, Anna V. Visual Instruction in the Public Schools. Boston, New York, 1928. Ginn & Co.
This was a basic reference.

Read entire book for history of movement.

Ellis, Don C. and Thornborough, Laura. Motion Pictures in Education: a practical handbook for users of visual aids. Introduction by Philander P. Claxton, New York, 1923. Crowell.
This was a basic reference.

Read entire book for history of movement. This manual comprises a discussion of the origin and growth of motion pictures and their use in education.

Finley, Charles W. and Tippett, James S. Field Work. Lincoln School, Teachers College, New York, 1925.

Read pamphlet for viewpoint on value of motion picture in the classroom.

Freeman, Frank N. Visual Education. A Comparative Study of Motion Pictures and other Methods of Instruction. Chicago, 1924. University of Chicago Press.

This book sets forth the history and principles of visual education, as well as their value and use in education. This was a basic reference.

Gregory, William M. Visual Aids in the Schools. Harter School Supply Co., Cleveland, Ohio, 1926.

The author sets forth the twofold point of view of the film technician and the teacher.

Hollis, A. P. Motion Pictures for instruction. New York, 1926. Century Co. Used by the writer in the compilation of significant data in this thesis.

Read entire book for history of movement.

Johnson, William H. Fundamentals in Visual Instruction. Chicago 1927.

The author indicates what educational films are available and where and how they should be used in teaching The Education Screen.

Knowlton, Daniel C. History and the Other Social Studies in the Junior High School. New York, 1926. Scribner's.

Read for relationship and value of motion pictures in The Social Studies.

Lincoln School of Teachers College. Curriculum Making in an Elementary School. Boston and New York, 1927. Ginn & Co.

Read for viewpoint on relationship of motion pictures to the different subjects of the curriculum.

Lutz, E. G. Animated Cartoons: how they are made, their origin and development. New York, 1926. Scribner's.

The author sets forth the place and value of the animated cartoon in education.

Routzahn, Evart C. and Routzahn, Mary S. The A B C of Exhibit Planning. New York, 1919. Russell Sage Foundation.

The place of motion pictures in the school exhibition.

#U. S. Dept. of the Interior, Bureau of Education, Bulletin No. 13, 1920. Educational Work of the Commercial Museum of Philadelphia. By Charles B. Toothaker. Washington, D. C.

This pamphlet sets forth the impetus given to educational motion pictures by commercial firms.

#U. S. Dept. of the Interior, Bureau of Education, Bulletin No. 82, 1919. Motion Pictures and Motion Picture Equipment: a handbook of general information. By F. W. Reynolds and Carl Anderson.

Read entire pamphlet for general knowledge of use of motion picture machines in the school.

#U. S. Dept. of the Interior, Bureau of Education, Library Leaflet No. 13, Dec. 1920. List of references on the Use of Pictures in Education.

Helpful in selecting bibliography.

#U. S. Dept. of the Interior, Bureau of Education, Bulletin No. 39, 1924. Visual Education and the St. Louis School Museum. By Carl G. Rathmann.

Read pamphlet for relationship of visual education and school museum.

#U. S. Dept. of the Interior, Bureau of Education, Bulletin No. 8, 1924. Visual Education Departments in Educational Institutions.

By A. P. Hollis. Read pages 1-15 for data on visual instruction department.

#U. S. Dept. of the Interior, Bureau of Education, Bulletin No. 7, 1921. Organization for Visual Instruction. By W. H. Dudley.

Read pages 1-16 for data on educational use of motion pictures.

Weber, Joseph J. Comparative Effectiveness of Some Visual Aids in Seventh Grade Instruction. Ph. D. Thesis. Chicago, 1922. The Educational Screen.

The thesis is an attempt to bring together from many sources pertinent facts in the use of motion pictures education. Read as a background.

Weber, Joseph J. Picture Values in Education. Chicago, 1920. The Educational Screen.

Used for information and comparative purposes.

Pamphlets

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THE MOTION PICTURE IN EDUCATION.

It is an indisputable fact that the human race has gleaned a large amount of knowledge through the sense of sight. "Seeing is believing" is an ancient adage in which there is a great deal of truth. More than 85 per cent of all knowledge people receive comes to them through the eyes.

The eye is the most retentive as well as the most observant of human sense organs. With many of the lower animals other senses are predominant, the sense of smell in some, hearing with others, but in man, sight is ascendent among his faculties. We know that in the dim ages visual images were used to convey information and even to teach. Sand was used as a blackboard in the open air village schools of ancient India. Drawings and paintings discovered in ancient caves in France and Spain show us the types of animals familiar to the men of that time, men who lived five or ten thousand years before the dawn of recorded history. Our earliest records are picture records made for the purpose of informing and educating.

In studying the history of education we find that educational theory in modern times has followed three distinct lines. The humanists relied for purpose of school training on the study of good authors with their records of human experience. The realists believed that teaching the child from books was secondary in importance to bringing him into direct contact with nature and reality. The naturalists maintained that the child can be prepared for life only by living.

John Amos Comenius (1592-1671) was the foremost realist

and he gave the world the first illustrated textbook in his "Orbis Pictus" or "The World Illustrated." Comenius believed that the child could not learn through words alone. He, therefore, appealed to the eye and the mind of the pupil through the skill of the artist. Words were classified and impressed by pictures or by the thing itself when possible. His "World Illustrated" became the most popular schoolbook in Europe and held that place of distinction for nearly a century.

Two other great educators, Pestalozzi (1764-1827), and Rousseau (1712-1779), representing the naturalist school, taught that the child should learn life by living and preached a "return to nature." Froebel (1782-1852), put Pestalozzi's theories into practice, and believed in developing the senses of sight and touch and employed visual aids in his famous kindergarten.

We are indebted, however, to Comenius for introducing visual education to the modern world. Visual aids are fully as old as education itself. The picture has grown steadily as an aid in teaching, from the time when earliest man carved the first crude drawings in stone until the art of photography and cheap reproduction made pictures accessible to all.

It is only within the past few years that motion pictures have been available for education purposes. We might be quite right in assuming that Comenius and Froebel would have eagerly seized upon the motion pictures as an aid to education if it had been available to them. The motion picture has disclosed a whole new world for observation and study. It has brought

the miracles and wonders of nature to the pupil, many of which have been too long hidden.

What do we mean by "motion pictures?" Dr. Rowland of Columbia University gives this definition: "Motion pictures are a method of communication thought by means of a series of photographs projected in rapid succession to simulate action."

While the development of the motion picture is new, the idea behind it is old. As long ago as 65 B. C., Lucretius in his "Rerum Natura" wrote of "images that appear to move," and Ptolemy, the Greek philosopher, wrote a series of books on optics about 130 A. D., in which he spoke of persistence of vision and described simple apparatus by means of which the phenomenon might be observed. It is the existence of this phenomenon that has made possible the development of the "motion picture."

Perhaps the dawn of the idea of motion pictures might be attributed to the nursery toy, "The Wheel of Life," invented in 1833 by W. H. Horner. This consisted of a hollow cylinder with vertical slits cut into it and having representations on the inner surface. By turning the wheels the drawings or paintings of animals or people in different positions, seen in rapid succession, gave the idea of continuity of motion.

To Dr. Sellers of Philadelphia we are indebted for the invention of the Kinematoscope which showed pictures to better advantage than was possible in the "The Wheel of Life." He was the first to use photographs of real people in continued action and to arrive at the conclusion that to obtain continuity of motion the pictures should be at rest during the moment of vision.

This is the principle of the intermittent movement, used today in both motion picture cameras and projectors.

It must be remembered that the development of the motion picture we know today has been made possible by a number of contributing factors, the most important being the development of the art of photography, the discovery of a flexible sensitized medium for recording photographs, and the invention of apparatus for taking and showing pictures.

An Englishman, Edward Muybridge, furnished the next step forward in 1872 at Palo Alto, California. His objective was an analysis of movement. He secured a picture of a horse race by placing twenty-four cameras along the edge of the race course with a fine thread attached to the shutter of each and stretched across the track so that a horse in passing would break the string and make an exposure on the sensitized plate. The results of his experiment caused such enthusiasm that Muybridge continued his experiments in pictured motion for twenty years. While working at the University of Pennsylvania he succeeded in making the first instantaneous photographs of rapid action and in projecting them on a screen in such a way that the spectator received the impression of continuity of motion.

It is to Thomas A. Edison of East Orange, New Jersey, that we owe the Kinetograph a recording machine for taking motion pictures as now used. In the Kinetograph the observer looked at the film instead of at the screen, and only one person could see the picture at a time. The basic invention of motion pictures as we know them was here, but more work was needed to be

done on them.

The means of throwing pictures on a screen by means of a moving film was found by C. Francis Jenkins, a young clerk in the U. S. Treasury Department at Washington, who came forward with a machine which would project on a wall or screen pictures from moving celluloid film so that these moving pictures could be seen by a number of persons at once.

At the Chicago World's Fair in 1893 Muybridge exhibited on his revolving disc machine, the Zoopraxoscope, 20,000 original photographs dealing with animal motion, and here also, Edison exhibited his Kenetograph the first motion picture machine employing film, which immediately sprang into popular favor. On April 27, 1896, New York saw its first motion picture show, pictures being projected on a screen at a theatre on 23rd Street. From that time on showmen saw the entertainment possibilities of this new medium and developed them.

It is most significant, however, that Muybridge's experiments which mark the real beginning of motion pictures, were scientific in character and results. The first use of motion pictures by the founder of the art, was in education. Moreover, for many years Muybridge's experiments were conducted at the University of Pennsylvania as a contribution to the advancement of science and education. Dr. Etienne Jules Marey, an eminent French scientist, took up the work practically where Muybridge left off. He devoted his experiments solely to the attainment and demonstration of scientific facts. His notable invention of a camera which was capable of taking several ex-

posures per second through a simple lens was a most important contribution.

Some of Dr. Marey's early motion pictures are of as much scientific interest today as when they were performed. Many early scientists employed the cinema in research work and original investigations, with most satisfying results, but few of the films they recorded were ever given to the general public because they appealed to only a limited few.

All of these early experiments and accomplishments were in the cause of education and instruction. The use of motion pictures for entertainment was a later development. It is obvious that the field of education has first call on the cinematographic art.

The school use of motion pictures was foreseen as early as twenty-eight years ago when an exhibit of the schools of Washington was made for the Pan American Exposition at Buffalo which presented the activities of the schools by motion pictures, stereoptican slides, and graphophone records. The films were made of high school lessons in forging, metal working, biology, physics, military drill, etc., of intermediate schools exercises in woodworking, cooking, folk dancing, playground activities, and physical training in varied forms; and of primary school lessons in nature study and language.

In a small auditorium in the Government building at the exposition in 1901 these records were reproduced with excellent effect. In general, a lantern picture was projected on the screen while the graphophone record was reproduced; and the motion picture followed. Naturally, only the high points of the lessons

were recorded, and the sound reproductions were reduced to three minutes and the films to about one.

The exhibit was a feature of the Government display, and every showing was attended by as many as could crowd into the small auditorium.

Mr. Marvin, president of the film company, was particularly interested in the possibility of using the films in school work elsewhere. He believed that teachers generally would be benefited by seeing how these expert teachers presented their subject. He declared that he would "see what he could do to get the school people to take up motion pictures in their work."

He could do very little; but he made one of the first experiments in that direction. The time was not yet ripe for that form of visual education, and his films and the method of showing them were hopelessly unsuited to school use. The film was relatively very wide and each picture was seven times as large as that on the "Edison Film" which was soon afterwards adopted as standard. The projection was at high speed, and 300 feet of film were used for a minute of picture. The film was without perforations and the projecting machine operated by friction and made a noise that was a most deafening. None but a trained operator could project the pictures, and in the absence of the safeguards that are now customary the fire hazard was great, though it was scarcely realized at the time.

Although in this country more attention has been devoted to the development of motion pictures for the more profitable

field of entertainment, their value for education, with which Muybridge and Marey first endowed them, was never lost sight of.

The Federal Government was among the first to utilized motion pictures on an extended scale for instruction. The United States Reclamation Service seems to have been the pioneer among the bureaus at Washington to take up this work, and that bureau exhibited at the Jamestown Exposition in 1907 films showing the work of the Government in reclaiming arid lands.

The United States Department of Agriculture was soon to follow and was the first branch of the Government to establish a laboratory of its own for the production of educational films. Pictures on plant and animal production, forestry, plant and animal diseases, home economics, dairying, food chemistry, road building and numerous other subjects covered by the varied activities of the Department were made. These films are of considerable educational value, contain a wide range of scientific and practical information and have for a long time probably constituted the largest single collection of educational films on a related group of subjects, --if we except the geographic or travel films, which, because of their wide popular appeal for entertainment and their facility of production, have long formed the largest numerical group.

The Committee on Public Information, created at the time of our entrance into the World War for the dissemination of information concerning the governments war activities, established a film division, which, according to the report of its chairman, was second only to the newspaper division in spreading informa-

tion at home and abroad. This division by its own large appropriations and through the unlimited co-operation afforded by other branches of the government, the motion picture industry and the general public was able to produce and widely distribute instructional and inspirational pictures which were real factors in maintaining and increasing the morale and patriotism of our people. This attention given to motion pictures by the Government during the war gave them an impetus, and dignity and an importance as a medium of conveying information that they never before possessed.

This stimulus given to the production of films during war days is still felt at Washington where the Departments of Agriculture, Interior, Labor and Commerce and, to a smaller extent, other Departments are carrying on their production of valuable pictures. The several states, educational institutions and private companies are yearly turning out and making available a modest but increasing number of screen studies and pedagogical pictures, and these are visibly improving in quality as time goes on.

It is obvious that the production and distribution of instructional films are the functions of organizations or individuals specializing in these efforts and can not be handled properly by theatrical companies. The latter seem to have little sympathy with the school angle, are not possessed of the point of view necessary for success in co-operating with schools and seem to find the profits in the school business not large or rapid enough to suit their investment requirements.

In film production, as in book publishing, the manufacture and distribution of a product for a use of schools seems to demand specialization. It is for this reason that such commercial companies have arisen and are progressing as the Society for Visual Education, National Non-Theatrical Motion Pictures, Visual Textbook Publishers and other similar organizations, which are devoting themselves exclusively to the non-theatrical field of pictures.

It has been mainly through the efforts of such companies as these and of many of the state universities, the Federal Government and some of the large manufacturing companies, that even now a fairly large quantity of acceptable instructional film is to be had. Films on commercial, physical and general geography, zoology, literature, civics, agriculture, hygiene, surgery and to a lesser extent chemistry, botany, history and physics are available.

Lack of an adequate supply of suitable educational films, doubt as to the character of projector to purchase, unreasonable and lack of uniform legislation regarding the use of films in schools, lack of sufficient funds with which to purchase projectors and films, lack of proper co-operation between the users, producers and distributors of educational films, lack of architectual provision for motion pictures in school buildings and the conservatism of educators are some of the factors which have retarded the demand for and the use of motion pictures in instruction.

Despite these factors, the use of the cinema as a supplement

in school work has developed remarkably in the past few years until now it has become conclusively evident that films are to be an important and an essential part of school work and that in the near future no well-equipped and efficient school systems will be without a projection machine and an adequate appropriation for films to correlate with class work.

Already many of our most modern and efficient school systems have visual instruction departments with supervisors in charge. Such is the case in Atlanta, Berkeley, Buffalo, Chicago, Cleveland, Detroit, Indianapolis, Kansas City, Los Angeles, Newark, New York, Pittsburg, San Francisco and St. Louis. Provision is made in these cities for funds for the purchase of motion picture projectors and for the purchase or rental of films. Many other school systems which have not as yet instituted visual instruction departments and numerous individual schools in all parts of the country are utilizing motion pictures for instruction. #A recent study has shown that 15,000 educational institutions of all types in this country are equipped for motion picture projection. Many State Universities maintain film libraries in their extension departments and systematically supply films to schools and community organizations in their own respective states.

Some universities make films on their own account and upon a rather extensive scale. In several of the cities, like Newark, N. J., every new schoolhouse is equipped with projecting machines,

U. S. Dept. of the Interior, Bureau of Education, Extension Leaflet, No. 1 Dec. 1919. Educational Institutions Equipped with Motion Picture Projection Machines.

and some cities, of which Cleveland is an example, have already installed such machines in practically all their school buildings as a matter of course. And the use of this form of instruction is increasing rapidly, notwithstanding the misgivings of those who hold that learning through pictures is too easy and that it results in superficiality and mental indolence.

In 1924 for the first time in the history of its schools the School Board in Boston made a special appropriation for visual aids in instruction. The results of this appropriation attracted attention on account of the widespread and increasing interest in a subject of well-nigh universal appeal.

Visual education in the schools of Boston up to that time had consisted, in the main, in the extensive use of pictures and in a general use of stereographs and of lantern slides. For some years it had been customary to allow a principal to expend annually under his per capita allowance, for stereographs or slides, an amount not in excess of $120. Occasionally a principal, within the above allowance and subject to the Superintendent's approval, had rented motion picture films of an educational nature. Until 1923 the statutes regulating the use of films practically prohibited their use in the schools, but a statute enacted in that year made possible, without special booths, the exposition of noninflammable films in school rooms and auditoriums. The producing obstacles removed, the school man faced the problems of the selection of films that may be adjudged educational and of the methods to be approved in their use. A committee appointed by the Superintendent and made up

of ten intermediate and elementary principals who in the past had shown unusual interest in visual education had been at work studying the different types of projecting and motion picture machines and of films that were desirable and available, together with the best methods of classifying, organizing, circulating and using pictures, stereographes, slides and films. The committee continued its work of ascertaining what aids to visual instruction might be said to be scientific, sane and to be approved, in contradistinction to what, in the past, has been chiefly the work of the showman whose object was entertainment. The committee examined and selected a list of non-theatrical films dealing principally with food, clothing and shelter and those visualizing the essential industries affecting our lives, such as the history of transportation, light, power and the basic manufactories. Visual aids to the study of geography, history and literature were later made and these the committee organized into their related places in the curriculum; in other words, visual aids were woven into the educational fabric. The teaching of ideas in their relations to others and not as isolated facts has ever been good pedagogy.

Difficulties have arisen in plenty, and often it has seemed that the end had been reached. Many companies organized for the manufacture of educational films have been forced to the wall because the number of schools using their product regularly was not sufficient to enable them to operate at a profit. And at least two big concerns which undertook to supply non-theatrical films found that the money in it was not enough to make the

business worth while and they dropped it. The production of a sufficient supply of suitable educational films, therefore, seemed hopeless.

This difficulty was well nigh a fatal deterrent for those who wished to supplement their usual instruction in this way. The cost of equipment, the difficulty and expense of operating the machines, the inconvenience of shifting pupils from classroom to auditorium, the troubles in procuring films in the absence of suitable distributing agencies, the lack of co-ordination of the subject matter of the available films with the regular work of the schoolroom have all militated powerfully against the practical usefulness of the method.

All these difficulties have not yet been overcome by any means, but the situation has steadily improved in every respect. The stock of available films of excellent quality has greatly increased, but the number of text films--that is, those which may be used in direct connection with the daily teaching--is far from adequate. The portable type of projector seems to solve the problem of classroom use; safety film avoids fire risk; the improved devices make it possible for the teacher or an intelligent pupil to operate the machine without long training; and the narrow film reduces the cost materially.

One important indication of the growing place being accorded motion pictures in instruction is that nineteen of our large educational institutions having normal departments for teachers' training are giving or have given some instruction to their students on the use of motion pictures for visual instruction.

Certainly the day of the educational film is at hand and the prophecies of those early inventors and investigators of motion pictures are about to be realized. It was Thomas A. Edison who said, "My opinion is that in time the schools will be the principal users of moving pictures." Dr. Marey stated in 1895, when the motion picture was truly in its infancy, that this new medium seemed likely to extend our knowledge with regard to all kinds of phenomena. "But its future," said this pioneer investigator, "depends upon the correction of the distortion of the image, on the discovery of a satisfactory means of projecting a much larger number of moving images on a screen so as to be visible to a large assembly and on increasing the number of successive photographs so as to present a performance of considerable duration." Dr. Marey did not foresee that the realm of entertainment would be interposed between the wonderful advances in the cinema for which he was so largely responsible and the complete fulfillment of his vision. Every one of the requisites which he laid down as necessary of accomplishment before the cinema should perform its full educational function have been fulfilled and more. The enterprise of the very entertainment world whose interposition he overlooked has added refinement and technical development to the art. His dream has come true and the day is breaking for instruction through the motion picture, the greatest single element for the advancement of learning since the invention of printing.

PART II

It is most gratifying to find that educational leaders every where are becoming fully aroused to an appreciation of the mistakes of the past and of the real place of motion pictures as an invaluable contribution to better teaching. Instead of the unwieldy, cumbersome show piece in the auditorium, up-to-date portable projectors are being installed every where--often in a well-planned visual instruction "laboratory". It is being recognized that only non-inflammable films should ever be brought into a school building, and that the films employed should also be built directly into the daily lesson instead of serving merely as an auditorium show, or as a general review of an entire course. More gratifying still is the fact that producers of educational films today, profiting by mistakes that have been made in the past, are organizing motion pictures that fulfill most acceptably the standards set forth herein,--and not now and then a single reel isolated and unrelated, but series of reels carefully correlated with definitely established courses of study.

Progress in all phases of visual instruction is actually taking place. Some important recent developments are extremely significant and should be recognized.

1. The Eastman Laboratories Project. Dr. Thomas E. Finegan, nationally known educator and formerly state superintendent of Public Instruction in Pennsylvania, was recently appointed Educational Director of the Eastman Experimental tests with class room films.

2. Yale University Press project. For the past few years the Yale University Press has been devoting its efforts to the picturization of "The Chronicles of America" in motion picture form. In this experiment the educational expert and the motion picture expert have worked hand in hand.

3. Metropolitan Art Museum project. The Metropolitan Museum of Art, New York City, has launched a project to inaugurate a series of motion picture films relating to various phases and periods of art. This is made possible largely through the opportunity to use objects owned by the museum and on display in its galleries. The museum has also produced valuable films on such subjects as "Firearms of our Forefathers," "Egyptian Monuments and Native Life," "The Spectre"--A New England Legend," "The Gorgon's Head," the well-known story of Greek Mythology, and "The Making of a Bronze Statue".

4. Achievements of the Roosevelt Memorial Association. For several years the Roosevelt Memorial Association has been gathering motion picture films which were made during the lifetime of Theodore Roosevelt. A large number of these films have been secured by purchase or gift and have been edited, titled, and arranged with additional dramatic scenes, for general education and historical use. A few of the completed reels are "Theodore Roosevelt Himself;" "Roosevelt, Friend of Birds;" "The River of Doubt,--Roosevelt, Scientist and Explorer;" "Theodore Roosevelt, President of the United States;" "Theodore Roosevelt, Big Game Hunter;" and "Roosevelt in the Great War."

5. Production of medical and surgical films. At a recent

congress of the American College of Surgeons in Montreal a permanent committee, including some of the most eminent doctors in America, was appointed to study and classify the films now available, to analyze the possibilities for future picturization and develop the most effective use of films for both professional and lay service. Recently the first medical film library was established by Columbia University in New York. The films demonstrate the latest developments in the fields of medical and surgical science. Prints of the library negatives are distributed to clinics throughout the world. Since 1920, the American Social Hygiene Association has distributed copies of its films to official and voluntary agencies in seventeen countries outside of the United States. The inhabitants of Egypt, China, and even Iceland are receiving the social hygiene message that the films impart.

6. Achievements of the United States government. Twelve different government bureaus assisted in the survey of mapping 25,000 miles of southeastern Alaska. This feat can hardly be over estimated and is scarcely less spectacular then the recent dash to the North Pole. It required two airplanes, flying in line one hour to map a strip approximately one hundred miles long and fourteen miles wide, as each camera photographs an area about seven miles wide at one exposure, with its three lenses. This region abounded with mountains 10,000 to 20,000 feet in height whose peaks were crowned with snow, and whose lower slopes were covered with such heavy forests that for many years they safely defied the combined efforts of timber

cruisers and surveyors.

The United States Government has also assisted in a plan to preserve all films of historical value at the suggestion of the Motion Picture Producers and Distributors of America. The films are preserved in the new Archives Building in Washington and include thousands of reels of important motion pictures made during the war, news events beginning with the inauguration of President McKinley, and historical dramas.

7. The Pathé Current Events course of motion pictures. The Pathé Exchange has launched a pioneer project in offering to public schools a current events course. This course is assembled from the regular Pathe News weeklies shown in the theatres. Desirable subjects, selected from the contents of two weekly releases, are assembled in one reel. When current history courses can be supplemented by such Pathé News reels as "Byrd's Expedition to the North Pole by Airplane from Spitzbergen," "The Smithsonian Expedition to Central Africa," or "Soviet Russia Revealed," the future possibilities of the motion picture as a teaching aid seem almost unlimited. As evidencing the trend of the time, it should be noted that all of the above companies have definite school courses in mind, with well-organized series of reel to fit these courses.

Unquestionably the outstanding contribution to visual education is the Yale University Press "Chronicles of American Photodramas" a series of thirty-three productions presenting the most important episodes in American History.

These films produce in every detail striking incidents

in the history of the United States from 1492 until 1895 and are recognized by educators as the most significant contributions yet made to visual education and as the most effective visual aid yet created to assist in the teaching of American History. Stupendous in conception and execution, this undertaking stands unrivaled. Fifteen of the series have been completed and are now in active service throughout the country. These historical films are to be used in a nation-wide program adopted by twenty universities and state boards of education to promote an appreciation of American traditions and ideals through a better understanding of American history. It is perhaps the first time that educational institutions throughout the entire country have joined forces so closely in a constructive campaign to promote an appreciation of the traditions and ideals of America, through a better understanding of American history, on the part of millions of the people of the United States.

The present program has been planned to afford the thousands of schools and communities the opportunity to make more extensive and intensive use of the films as a result of the cooperation among the Yale University Press, the various State universities and other organizations associated with the Press in the work, and the schools of the country. To this end complete sets of the films have been deposited by the Yale University Press with the Extension Divisions of a number of State Universities, through which they are made available for use throughout their respective states. Each school in a given

state is thus given the opportunity of using them for educational purposes. In New England, the Massachusetts State Board of Education is co-operating with the Yale University Press in the carrying out of this program.

Not content with mere production, Yale University has been directing most careful research. "The Chronicles of American Photoplays" as instruments in the teaching of American History have been subjected to several years' continuous and intensive experimental study in the departments of Education of the Yale Graduate School. The purpose of this study was to analyze and determine by rigid scientific method the nature and the extent of the contributions to teaching which these photoplays make when used under normal classroom conditions.

Plans for a complete series of health education films designed specifically for classroom use in public schools have been completed under an agreement by which the Department of Biology and Public Health of Massachusetts Institute of Technology will co-operate with the Eastman Teaching Films, Inc., of Rochester, New York, in what is thought to be the most comprehensive program of its kind ever undertaken. The program will include films showing the nature and functions of the body and problems in health control of the environment, all presented with the greatest scientific accuracy and so produced as to interest every child. Each film will be prepared for a particular grade level and will definitely recognize the extent and limitations of the health knowledge already acquired by the child. The first productions will be for the use of upper intermediate,

and junior high schools.

Great effort in recent years has been made to develop text films for classroom use. Much is expected of the experiments conducted in the past two years under the direction of Dr. Thomas E. Finegan, Dr. Frank E. Freeman, and Dr. Ben D. Wood. Twelve cities from Newton, Mass., in the East, to Oakland, California in the West, and from Rochester, New York, in the North to Atlanta, Georgia, in the South, were chosen for experimental work. Three of these are elementary schools and one is a junior high school. Two groups of children are under instruction; the control group or those given instruction without the use of films, and the experimental group or those given instruction with the use of films. Each of these groups represent children coming from similar home environments and social conditions in life. They were given tests to determine that they were on the same intellectual level. In each city there are at least 320 pupils receiving instruction in the same area of the subjects included in the experiment. There are 160 receiving instruction with the use of the films and 160 without the film.

In six of the cities 500 pupils are in the classes instructed with the use of films and 500 in classes without the use of films. In each of these six centers 1,000 pupils are included in the experiment. It is believed that an experiment of this character with approximately 8,000 pupils in twelve leading cities in various parts of the country will be adequate to obtain reliable and convincing evidence on the problems involved in

this experiment.

Three subjects in the school curriculum have been chosen, and films are being produced on topics outlined in the curriculum for classroom consideration. These subjects are geography, general science, and health. In geography thirty films have been produced. They are limited to the United States and are correlated to the subjects as treated in the curriculum. They are adapted to children of the fifth and sixth grades. In general science, fifteen films, and in health, five films are produced. These films are adapted to pupils of the first and second year of junior high school and are correlated with the selected subjects treated in the curriculum.

It is encouraging to note that important steps are being taken to stimulate interest in the production of more artistic educational films. The Riesenfeld Medal which is given annually to the producer of the best short subject, exclusive of comedies, during the year, has been awarded for two years in succession to an educational picture. In 1926, "The Vision," Educational Film Exchanges' Romance Production in Technicolor was awarded the Gold Medal as the most novel short subject released in this country in that year. This picture made entirely in natural colors, was Arthur Maude's conception of what inspired Sir John Millais to paint his masterpiece, "Speak! Speak!" now hanging in the Tate Gallery, London.

An educational picture also received the Riesenfeld Gold Medal when it was awarded for the first time in 1925. "The Voice of the Nightingale" produced by L. Starevitch, a Pole,

for the Pathé Consortium of Paris and released in this country by Educational Film Exchange, won this distinction.

Step by step new developments have been added to the seemingly limitless force, making it more effective and thereby more useful to man. By means of the microscopic attachment, which magnifies minute organisms fifty thousand times the natural size, germ life or minute insects may be studied in detail upon the screen. The telescopic attachment for long range photography, used particularly in the airplane, makes possible views of great stretches of mountainous country at one time, and has also enabled scientists to photograph birds and timid or ferocious wild animals in their native haunts.

The motion picture camera also penetrates opazue masses by the use of the X-ray, revealing the little caterpillar dexterously spinning about its tiny body the threads that form the inner lining of its cocoon. The X-ray has conferred a great boon upon the human race, for it has enabled the physician and surgeon to photograph the action of the various human organs. Medical students may study from the screen, over and over again, heart action, circulation of the blood, or the process of digestion.

The development of the slow motion picture is a great contribution to science and education in general. These pictures are taken by means of an ultra-speed camera which may take ordinarily one hundred twenty-eight pictures instead of the usual sixteen per second, and thus many more pictures are taken of one motion. When these films are projected on the screen at the normal speed, the movement is so slow that it is possible to analyze

it in detail. This slow motion may reveal the graceful movements of a swimmer in action, of birds flying, the unfolding of flowers, or the minute movements of intricate mechanism.

The right use of motion pictures in teaching helps to insure interest, economy, and efficiency in teaching and learning. It is an excellent means of imparting general information to large groups of individuals. But only certain types of films are suitable for mass training. Films of a technical nature and most industrial and historical films are entirely out of place, as they require definite preparation to be appreciated and understood; furthermore, as stated above, they should be used only when needed and only in smaller groups.

Nothing equals the motion picture for interpreting truth in a vivid manner. The motion-picture film is of vital importance in revealing true living conditions and picturizing great stretches of country at one time. America cannot understand Oriental books and get the Oriental point of view, nor can the people of the Orient read our books to any great extent, but all alike can read the message of pictures. This medium of conveying correct impressions offers invaluable help in solving our international problem.

Films that are used in groups of pupils of varying mental ability should be rather simple in content and yet entertaining in order to capture the attention of all. Some of the finest lessons in patriotism are gained through stories or episodes. It is essential, however, for the story or episode to have an appeal.

It is no longer possible to say, as has been said too often

in the past: "If we could be sure of proper teaching films our schools would make proper provision for their use." The situation is now reversed; films of the highest quality, and in ever increasing abundance, are now available. Producers have courageously risked hundreds of thousands of dollars in giving us films that meet the real need of the schools of out land. The important question now is whether school authorities will respond to the demands of the hour by putting funds for visual education in the annual budget in sufficient amount to support and expand the work so admirable conceived and under way. Films and projectors should be provided in the same way books and laboratory apparatus are provided. The true value of motion pictures will never be fully realized until they are placed upon exactly the same basis as books, and they must be used in exactly the same way. Motion pictures are nothing more than printing with light on a screen instead of printing with ink on paper. It is not merely that they give life to what they depict for they are actually a series of rapidly changing views almost precisely as they would be observed by the eye.

The moving picture is a valuable means of instruction and all our school systems should seize upon it. The real place and function of the motion picture film in education has not been correctly appreciated, obvious as it is values would seem to be to the initiated. Motion pictures are not only useful but may safely be regarded as a necessity where the problem to be solved by a class is a problem of motion, essential action--where a life process is to be demonstrated, where life activities of individuals or communities or peoples are involved--

and especially where such knowledge cannot be gained by any other means or device within the reach of the teacher.

The motion picture is a new medium for classroom instruction and its use involves a careful study of educational values and of teaching practices. At present impressions gained through words bulk large in the usual classroom procedure, and the attention of teacher and pupil is devoted largely to searching out the ideas back of the words used. With motion pictures the center of interest tends to be reversed, and one of the outstanding problems is to find words with which to report clearly the observations made and the inferences drawn from direct visual experiences.

A recent experiment revealed the following advantages in the use of films:-

1. That teachers were able to arouse more interest on the part of children with the use of films than without them.

2. That this interest is a sustained interest and that pupils continue to read about, to discuss, and to bring to the classroom material related to films, many weeks after the films were shown in the classroom.

3. That the children were induced to do more reading and to select books of finer quality. This viewpoint of the teachers is confirmed by the local librarians in several of the centers where the experiment was conducted.

4. That project work and other self-activities of the children were stimulated.

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5. That a greater desire is produced on the part of the children to write on some of the topics covered by the film and to discuss such topics in and out of the classroom.

6. That the children were led to correlate features of the film with their own personal experiences and with community conditions.

7. That the richness, accuracy and meaningfulness of experience and imagery were increased.

8. That greater originality in the children was stimulated.

If the school is to make any attempt to keep pace with life and to meet the definite needs of society, it must take advantage of every valuable contribution of modern science and invention as it is perfected, so that it may fulfill its function with increased economy and efficiency and enhance the joy of living. The motion picture, the radio, and the typewriter have not only brought untold wealth and greater efficiency to the business world; they have greatly enriched life generally in every corner of the globe. When such modern devices are common and necessary in the home and business world and have actually become a part of life itself, the school as a social institution cannot properly content itself with obsolete methods and antiquated equipment and expect to attain any satisfactory degree of efficiency in training boys and girls to meet the problems of current life. School and life must be one and the same, and modern school procedure must be up-to-date and progressive. Not to endeavor to keep pace with life is little

less than educational suicide.

To perfect the motion picture for educational purposes will require time, energy, money, sound pedagogical information, and earnest, competent study. Producers and manufacturers need encouragement rather than criticism from the professional educators, and all three should work in loyal cooperation toward the achievement of a common success.

PART III

There are three chief reasons why motion pictures have not come into general use as an agency in classroom instruction.

1. Few motion pictures adapted to classroom service have been produced.

2. The cost of the necessary equipment and the cost of production and distribution have rendered motion pictures prohibitive for classroom use.

3. Teachers generally are unfamiliar with the use of motion picture apparatus and with the use of film, and there is more or less feeling on their part that some embarrassment might follow an attempt to use them.

The production of a type of film for classroom use is purely an educational or professional problem. The cost of producing the necessary equipment and the cost of making and distributing films is purely an economic or business question. The training of teachers to use and to appreciate the value of films is a simple question of good school administration.

The general use, therefore, of classroom films resolves itself into the solution of these questions: Is it possible to produce the character of films which will yield measurable results in classroom work of sufficient value to make their use a profitable investment? If such films can be produced and this result can be achieved, is it possible to produce them at a cost which will make it practical and feasible for the schools to provide them? Can the teachers be trained to

use motion picture apparatus and to evaluate film service?

A part of the problem will from the nature of motion pictures be mechanical-relative to equipment and its installation and use and the handling of motion-picture films. The lack of experience in the use of motion pictures on the part of teachers indicates that they should be supplied with carefully prepared directions and suggestions to aid them in the use of this unfamiliar tool in classroom instruction.

It may not be expected that motion pictures will be given popular recognition as a teaching agency by educational authorities until sufficient reliable data upon these vital questions are available. The few experiments that have been made in this field both in this country and in Europe have been wholly inadequate in the results recorded and in making available to the public material upon which a basis for the determination of these questions may be reached.

Motion pictures have been so universally used since their beginning as a means of entertainment that in the great majority of attempts to adopt them to the use of the schools the entertainment idea has been carried over in them. The story and drama are factors of great power in educational processes and especially with children of the lower grades. Where this form of instruction is resorted to, it should be presented by the masters in story telling and in the dramatic field. But all the work of the schools should not be administered upon entertainment or dramatic lines. Films should not be made primarily to entertain children or to exert a dramatic power over them.

They should be made with the intent to present accurate viewpoints and pictures of actual conditions representative of our social and economic life. The dominant tone and spirit of the film should be to present ideas, to reveal processes, to clarify situations, to represent actualities,--to instruct. It is regrettable that too frequently attempts are made to use such appealing visual aids as a substitute for, rather than as a supplement to, the oral and written methods of gaining knowledge.

Motion pictures are invaluable, however, as a means of fascinating, wholesome entertainment. This use occurs less frequently and would ordinarily not grow out of or be related to regular classroom work. It does furnish valuable assistance to the school, however, in the latter's function of training for the training for the right use of leisure. This legitimate responsibility of the public school may be met very successfully through the use of visual aids both during the general weekly assembly and through weekly after-school entertainments which are managed and supervised by the school. During the last few years the weekly assembly has become a very important part of school life, especially in the well-organized city school system. It is in these large group meetings that the motion picture is probably rendering its best service in many public schools throughout the country.

The "professional" projector in the auditorium is none the less useful for showing informational scenes to larger numbers. Under the platoon plan of organization the auditorium showings

more nearly approach the character of classroom instruction. In the platoon schools of Detroit, Pittsburgh, and other cities, one day in the week is given to the motion pictures as a part of the auditorium exercises. The programs are arranged in advance and care is exercised to make the pictures co-ordinate with the classroom teaching.

The classroom film should be distinguished from the general assembly or auditorium film. The auditorium film is one intended for a general audience of varying ages, grades, and interests. It is used to provide entertainment or to give mass instruction. There is no competition between these two types of film. One does not serve the legitimate functions of the other. A film which is developed on pedogogical lines to illustrate a fundamental principal or to clinch some central truth which the teacher is endeavoring to develop in the minds, for instance, of a class of sixth grade pupils, is seldom adapted to the use of the general assembly. On the other hand, a film which will provide instruction or entertainment for the auditorium is not generally adapted to the more limited and specific purposes of the classroom. The chief emphasis now is laid on the educational motion picture and there is a gradual trend toward the discontinuance of the entertainment picture service.

The ideal method of use seems, therefore, to be made possible, provided the right kind of film is to be had. A teacher may give her lesson in the approved fashion, using if she wishes objects from the school museum, stereographs, and charts; and then she may adjust the window shades and project lantern

slides and illustrative film to supplement her verbal instruction, and leave an enduring impression upon the minds of her pupils by showing in acctual motion the things that involve motion.

Motion pictures should be what the term implies, and that is pictures which represent motion or action. These pictures should deal with situations, activities, operations, processes, etc. With these restrictions in their use there is an inexhaustible field of service for the motion picture. Certain subjects may be represented as well and even better by still pictures than by motion pictures. In the activities and processes of every avenue of human effort and interest are subjects of vital relation to society which can be represented by the motion picture only.

The time is at hand when moving pictures will be as much an adjunct of any properly equipped school as textbooks. The educator must use it for at the present time film manufacturers are educating five million children a day along more or less undesireable lines. In order to make visual education function successfully, three factors must be considered:

1. Careful selection of the material.
2. Proper presentation and discussion.
3. Judicious organization of pupil experiences and of thought development.

The best equipped leaders in visual education throughout the country, from experience, from experiments, and through tests, seem to agree on these simple fundamentals:

1. Active analysis on part of the visualizer is superior to passive receptivity. Before a picture or reel is shown a purposeful objective should be established in the pupil's mind by the teacher. This must not be too extensive for fear the oral comment accompanying the showing of the pictures or reel may be diluted. Accompanying the picture or film, oral comment on the part of the teacher is imperative and valuable.

2. Pupils must understand that they are to be tested on the subject matter of the picture of film.

3. The teacher must prepare her lesson before she shows the picture or film. Brief essentials in her comment on the subject matter, to the end that the pupils may have clear-cut and abundant sense impressions, are the gauge of a teacher's skill and efficiency.

It is doubtful if anyone is able at this time to anticipate and formulate the most effective technique for the use of motion pictures in the regular school program. Experience alone can indicate the best procedure to follow. One point, however, seems to stand out clearly. A line of distinction should be maintained between the things actually seen in the picture and the inferences drawn from them. In the interest of clear thinking and sound conclusions, it is incumbent upon the teacher to see to it that these functions performed by the pupils are kept

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distinctly separate.

It has been pointed out that a specialized technique is required for the adequate presentation of motion pictures in classroom instruction. It is not enough simply to show a picture. What the teacher does with it after showing it is vital to good instruction. This specialized technique must be mastered by the teacher, through adequate training and experience.

Whenever it is possible, each film should be presented twice--once as a preview to stimulate interest in a new problem, and again after extensive study and research has been carried on.

Most films are worth very little unless used as a means to an end. The child should know beforehand why he is to see a certain film and of what use it is to be to him. Then, too, the benefits of the film may be very greatly lessened by the fact that the teacher has not previewed it and thus has not been able to see that the class possessed the necessary fund of information for an understanding of the subject matter.

The motion picture also shows concretely how the work of the world is done. It is not always possible to visit special shops and factories to gain first-hand information, but through the motion pictures, a class at a time may study definitely all the details of the manufacture of tables, chairs, and automobiles. The operation of the completed automobile can be shown by means of slow-motion disgrammatic pictures.

There is hardly an industry worth studying that is not well

portrayed by a motion picture which can be used to advantage in the secondary schools. Students may visit great coal, iron, or gold mines, iron, steel or lumber mills, and boot, shoe, glass, or automobile factories. They may study every step in the development of electricity from Franklin's Kite experiment, Edison's incandescent lamp, and the making of the first electric battery to the manufacture of a 50,000 horsepower, steam turbine generator, the largest single power-producing unit in the world.

The motion picture is one of the most valuable means the public school has for conveying impressive health lessons. When the lesson is interwoven with an interesting story, the teaching power of the film is, of course, increased. The film is also destined to become a valuable visual aid in the teaching of literature. Through its medium the historical drama, pageants, and stories may become actual living experiences. It is physically impossible to place upon any legitimate state scenery which will portray to any considerable extent the historical verisimilitude which can be provided by the moving picture. On the screen we can see cities, great stretches of country, and hundreds of people photographed in living situations.

The motion picture film is destined to play a most important part in the future teaching of history. It is the only visual aid that has the power to portray truthfully the activities and processes of which all history is composed. History can be vitalized through visualization. Because history is dynamic, romantic, and full of color, the motion picture pro-

mises to render a greater service in the teaching of this subject than any other visual means. As photography is comparatively a new art, it has always been a difficult thing to obtain suitable pictures with which to enrich history teaching. But the magic motion picture has overcome every handicap of time and space, and re-creates every activity of ancient or modern history as accurately as the original happening.

The needs of current life must very largely determine the subject matter which is taught in the public schools. As a result, a new interpretation of education and new methods of teaching have arisen which necessitate a broad use of visual materials to make certain types of subject matter impressive and effective.

In the daily activities of life outside the school, arithmetic, reading, geography, history, and civics are used as need arises in both work and play. Similarly in the schoolroom, it is soon discovered that hard-and-fast lines cannot be drawn between these studies, for the subject matter is very closely correlated. In solving the problems and executing the projects, the different subjects lose their indentity. In developing the objectives in teaching these subjects of the curriculum motion pictures may be used with far-reaching results. Children must be led to see, to feel, and to think deeply regarding the problems involved in each of these subjects. Motion pictures help us to visualize many of the important facts and can portray conditions and activities so that they seem real. Greater curiosity and interest are aroused through actually seeing and feeling.

Thus it is becoming more and more clear that motion pictures are indispensable to modern teaching and possess also the inestimable quality of speaking a universal language.

The motion picture film is of tremendous value in developing economic problems, as it reveals not only environmental conditions but processes. The element of life and motion complete the experience.

The motion picture programs in the schools usually include full reels. The great majority of schools set aside an hour and show three reels. Nearly all reels cover a period of fifteen minutes. Conditions in the educational world were such that it was necessary to make them of this length. Today, however, we are departing from this tradition and are making shorter reels. These reels are intended to illustrate one point in a lesson. It may take one minute or three minutes to present the essential points of a lesson in a film. The time to show such film is when the lesson is under consideration. For instance, a lesson in geography dealing with the cocoanut industry of the Phillipine Islands in given today. At the appropriate time during the recitation the teacher will show a three minute reel dealing with that product. The next lesson may deal with the sugar industry and the one following, with the hemp industry. As these lessons are considered in recitation, the proper film will be shown. Film programs in the schools will be developed eventually on this plan. Short films may be used for several subjects in the same school. This plan would provide economical service and be of great aid in extending film service

in the classroom.

There should be a visual education department in every school system. Though State institutions were the pioneers in establishing departments of visual instruction, the cities have passed them in the organization and support of these departments.

If motion pictures are to become an effective agency in teaching institutions of the country, film libraries adapted to instructional purposes and co-ordinated with courses of study must in time be established in each school, college, and university, so that films adequate in number and character may be available for daily use of the teacher as maps, charts, textbooks, reference books, and scientific apparatus are now available for the purposes which they serve in the classroom. A few films selected each year will enable the authorities of the school to develop in a short period of time a valuable film library which will be a great asset to the practical and effective work of the classroom.

Schools all over the country are spending vast sums of money for visual equipment. They are buying the tools, but are making little provision for training teachers in their use. It is reported that in one large school system forty almost new motion-picture projectors are lying idle in the various school buildings. In this particular city there was no head to guide the work. Films were scarce and hard to get, and teachers became discouraged with the plan of circuiting miscellaneous films, which they had no chance to select or preview. Many similar cases could be quoted where serious mistakes have been made as a result of the administrators being carried away on a wave of

enthusiasm and not thinking through the whole problem before taking the first step.

In order that visual instruction may function educationally it is practically necessary that principals and supervisors as well as teachers be trained, particularly in the proper technique for the use of visual materials. If more administrators and supervisors had a clear conception of the educational needs and uses of visual materials, the training of the classroom teacher would naturally follow, and her task would be greatly simplified. For administrators would then feel the need of providing suitable motion picture films and of offering adequate opportunities for teacher training. This does not mean that administrators should become experts in this field--that would be impracticable; but they should thoroughly understand the need of and the best pedagogical technique for using such tools in all teaching situations. Educators are greatly concerned in the choice of textbooks and their use in the classroom; yet the choice of the quality and subject of motion pictures, which may be capable of wielding a far greater influence for good or evil over the minds of young children, is often left to unskilled hands, and even to laymen who do not understand public school needs.

The need for training teachers in the problems of visual instruction has already been recognized by a few outstanding institutions scattered from coast to coast. According to the United States Bureau of Education Report in 1924, eight of the twenty leading institutions having visual instruction departments, or four-fifths of them, also gave courses in visual education. This

was a remarkable development in the short time visual instruction departments had been organized.

These courses took up the fundamental reasons and technique for using visual instruction in classroom teaching. The principles and procedure of modern pedagogy was thus involved. For visual instruction particularly requires of the teacher an understanding of the physchological principles of modern classroom procedure. Every step in the technique of using motion pictures is tied up with an actual teaching situation, where problems are to be solved and projects executed.

Since visual materials, particularly stereoptican slides and motion pictures, are already being used in the public schools far and wide, there is great need that the work should be guided by trained leaders and that more suitable materials should be collected. The practical application of such visual aids is no longer an experiment; the pioneer stage has passed, and definite conclusions have been reached both technique and distribution of materials.

A centralized bureau either in a state or in a community seems one of the first steps toward effective educational results. In the first place, such a bureau means economy. Principals and teachers have neither time nor, ordinarily, the training to do justice to this work, with the result that money is often wasted on poor materials. Where a central bureau is maintained by a school department, not only better visual material but also a greater variety may be purchased.

When we stop to think what the proper use of motion pic-

ture films can do and is doing toward eradicating illiteracy and educating the masses all over the world, lifting them to higher planes of living, besides bringing joy and meaning to school lessons for thousands of boys and girls, it seems high time that these departments be more justly appraised and definitely and intelligently planned for.

More urgent than the spread of visual instruction, however, is the supervision of procedures already in practice. Many schools throughout the country are well equipped with visual materials and apparatus, but they are used in a haphazard fashion and with little knowledge of any definite technique governing their employment. The finest tool is worth less if placed in unskilled hands. Its effective use depends upon the skill of the operator. A superior film cannot possibly bring about effective educational results if used contrary to the principels of good pedagogy. It is evident that all teachers, whether preparing for or already in the service need definite training in the use of visual instruction since it involves entirely new problems in education.

The outlook for motion pictures as a dynamic factor in the educational field has never been more promising. The early pioneer work has been done. The movement has already gone through its reactionary stage and is now swinging back to assume a logical legitimate place in modern teaching procedure. The motion picture enthusiast, who attempted to transplant the film bodily from the theatre into the school, soon became convinced that it lacked educational qualities and was unpedago-

gical in arrangement and content. Although this experiment proved a failure it served to attract the attention of prominent educators to the great possibilities of visual instruction as an effective aid to teaching. As a result, visual instruction as a field for research is now being scientifically studied, and the attention that is being given to this problem by universities, teachers, colleges, and public schools systems is very encouraging. It is interesting to note that three of America's oldest and most conservative universities --namely, Columbia, Harvard, and Yale have recently taken the initiative step in offering facilities for scientific research in the field of visual instruction. Many other colleges or universities have, of course, been offering teacher-training courses for several years.

The scarcity of suitable visual materials has hitherto been a serious handicap, but it is being rapidly overcome. Such visual aids as flat pictures, maps, globes, stereographs, and stereopticon slides have been fairly plentiful and not difficult to obtain. Quite the opposite has been the case regarding educational motion pictures. Probably too much has been expected in so short a time. The classroom motion picture probably must pass through many of the same development stages that the printed textbook experienced, before satisfaction is reached. Yet each step in the development of the printed page, from the use of the wooden-blocks and Gutenberg's movable type to the modern monotype and linotype, has added greatly to human progress.

It has consumed years of patient endeavor to perfect the beautifully illustrated textbook of today, and it has not been the achievement of one individual or group of individuals, but the result of the united efforts of many mechanical engineers, publishers, and educators. So the development of desirable visual materials requires time and the concentrated efforts of many different types of experts. The mechanical expert must perform his part in developing more suitable apparatus; the educator must assume his responsibility of gathering educational material and of organizing and editing the same to meet the needs of the school curriculum; and lastly, the experienced producer and publisher must be depended upon for the final production and distribution of the finished product.

It may not be looking ahead too far to predict that in the near future reliable makers of textbooks and companies producing pictures will join hands and develop valuable series of slides or motion pictures illustrating the text of the books.

Books and illustrative materials, if used pedagogically, must always supplement each other. Why then should not the textbook publisher and the picture producer co-operate for the benefit of education? For the past few years the motion picture producers have been "picturizing" some of the "best sellers" on the screen without injuring the book market. In fact, the popular book field and the motion-picture enterprises have joined hands to the benefit of both. This co-operation will no doubt be extended to the educational field within a brief time.

The future holds in store even greater possibilities along

the line of improved mechanical equipment. Such modern inventions as the talking motion picture, known as the vitaphone, seem almost magical in the effects achieved. The process, said to be the result of several years experimenting in the General Electric's Schenectady laboratory, means but a slight change in standard projectors, and involves only the addition of a sound reproducing attachment and a loud speaker suitable for auditorium use. Both the picture and the sound are recorded on the same film.

There are three principal elements in the apparatus, including a standard motion picture camera, a sound recorder and a standard motion picture projector with a sound reproducing attachment, all driven by synchronous motors. The pictures themselves are made in the usual way on standard film.

At this early date it is not possible to define the fields in which this new type of talking motion pictures will be of use. We know that it is supplying full orchestral accompaniment for pictures. The community picture house, accustomed to having a piano, will be able to have the same music as the metropolitan theatre.

Another field is offered by the news reel. Not only will it be possible to show important persons, but they can talk to the audience, and visiting notables can extend their greetings.

Educationally there are many ways in which this new apparatus will be of service. Many schools and colleges are already equipped with motion picture projectors as an aid in classroom work, and the new film will be found of even more assistance. In the case of professors from abroad, it will

be possible to record their lectures and demonstrations simultaneously, and to give their lectures the widest possible use by circulation of the film to colleges and universities throughout the country. Similarly, an authority on the subject can give a description to accompany any educational film for use in schools, the speech pointing out the important features of the picture simultaneously with their appearance on the screen.

A prediction that within then years men will be able to see and talk to each other across the ocean, was made by E.F.W. Alexanderson, consulting engineer of the Radio Corporation of America and the General Electric Company, in discussing "television," the transmission of pictures by radio before the American Institute of Electrical Engineers in a recent meeting at St. Louis.

Several pictures made by the process were exhibited. In outlining the possibilities, he predicted the day was not far distant when radio motion pictures would transmitted across the Atlantic. The telephoto projects an almost instantaneous picture of whatever is visible at the transmitting station. He predicted that this device would be coupled with radio telephony, so that pictures and sound would be transmitted simultaneously. This invention will also open up the way for motion pictures in the home.

Three steps must be accomplished before television can be developed to the point of a public utility. The first--broadcasting of pictures has already been accomplished but needs perfecting of the method of reception. Likewise, the second

step--the sending of facsimile messages--has been accomplished, but more speed in the process is necessary before it can become practical. After that will come the development of speed enough to send a motion picture film from any part of the world. News reels of the events of the day may then be shown everywhere the day they happen.

The next step will be actual television--when the motion picture of a person at a telephone on one side of the Atlantic, or equally far away, will coincide with the hearing of the voice of the person on the other side of the Atlantic.

The two fundamental obstacles that once made people say television was impossible have been removed. The discovery of the short wave gave potential speed enough for transmission. The devising of a television projector using seven light sources increases the useful illumination forty-nine times and provides all the light necessary for the screen.

The Smithsonian Institute of Washington has announced that the mysteries of aquatic life of the ocean will soon be revealed by means of a motion picture camera expecially adapted for use on the sea bottom. It is expected that the improvements made over the type of old submarine camera will make it possible to record the life of deep-sea denizens as simply and as accurately as if it were on land.

Quite apart from the educational importance of the secrets which this new invention will reveal to mankind, it has great scientific value as well. It will reveal the faunal associations under the sea. Thus scientists can learn what groups of life gather together and under what conditions of temperature,

salinity, and so on. This information will give them the key to the conditions in which fossil marine animals lived and will be of great assistance in correcting geologic time.

Scientists are constantly at work in their laboratories making improvements on apparatus now in use and further making new discoveries which will result in the development of entirely new possibilities in the use of motion pictures.

One of the great problems facing the world today is the establishment of permanent world peace. In order to carry on a constructive campaign for world peace it is evident that we need a large library of specially selected films which will portray the truth regarding the peoples of the world.

It has become a custom among all peoples to look upon all foreigners as inferiors because they are different--not our kind. The American is inclined to look down on the Oriental and call him a heathen simply because his customs and traditions are unlike his own; and, at the same time, to the Oriental the American is a foreign barbarian with crude manners and a soulless civilization. Ignorance and intolerance, then, are the root of the evil,--war; and the two great forces that can be saving the world from a backward step and bring general harmony between peoples and nations are understanding and human kindliness.

The public school is the one great institution that, through its strategic position, has the power to spread education of the right sort, to direct thinking, and to bring nations into better understanding and appreciation of one another. The ideals and

attitudes of the future generations depend, from now on, on what is taught and how it is taught in our public schools.

The problem of world peace involves world education--education that deals with certain definite ideals and principles. The great masses of peoples in all states of civilization, literate and illiterate--Filipino, Samoan, Hindu, Chinese, Japanese, Spanish, German, Russian, Mexican--must be reached. People speaking different dialects of the same language must be persuaded to change their mode of thought.

The pictured illustration is the only universal language at hand, and it seems to present the most logical and feasible means on which to concentrate attention and with which to begin organized work for world education. The motion picture is not a far-off vision which we hope to perfect at some time; it is already here reaching out into every nook and corner of the globe, wielding its powerful influence for good or bad.

The habit of seeing and enjoying the motion picture is already created. The whole machinery with which to start organized propaganda is in full working order in many schools, churches, and theaters of all nations. The educator's duty lies only in the organization of a definite campaign and the production and classification of the right sort of educational motion pictures. This work, however, will need to be centralized and unified through national and international educational association.

Peoples are more alike than different, and every civilization has something which is worth while and which deserves careful study. But no outsider can look on and interpret the

finest in any civilization. Individual nations must work co-operatively in building up a variety of suitable material which will show types of peoples at work and at play the world over. This material must be filled with the human element so that it may be highly interesting as well as instructive. As international bureau could control and distribute this material. The public schools of the world are ready and clamoring for such material. There are already many travel films in the field for the upper grades, but there is almost no material of the right sort for the primary grades; and this is where the foundations of the work must begin. Here we need motion pictures protraying people and home life and stories and fairy tales of various lands. The weaving in of episodes, dramatic action, an element of humor, and the like greatly enhances the teaching value of any educational film. It must contain a gripping appeal if we are to hope for effective results. Such films might be used not only as regular supplementary texts in all public schools, but might be widely distributed in community centers, churches, clubs, and theaters.

When understanding and human kindliness become a vital part of our consciousness, prejudices will be overcome, differences will be adjusted, and a new era will surely be born into the world. It is in helping to solve this great problem of modern civilization that the motion picture promises to render its greatest service to humanity.

Educators and men of science have instinctively turned to motion pictures for aid in teaching and demonstration. Contin-

ually, though spasmodically, has the educational use of the cinema been slowly evolving. Some educators have made excessive claims for the motion picture as the coming panacea of all education's shortcomings, destined to supersede text books and supplant teachers, to furnish a soft and easy road to knowledge. Others have been equally excessive and intemperate in discounting pictures as a frill, a fad, as of no real merit in education. But between these two extremes have been men and women who have recognized in the motion picture a valuable supplement and aid to the imparting of knowledge and who have been patiently and with much labor and confidence in the future helping the pictures over the rocks of early endeavor. Visual instruction by means of motion pictures can only be accomplished on a large scale by having a well organized movement, properly financed, supported by people who have other interests and are willing to patiently wait and work.

The production of strictly pedogogical films and the use of films in education have scarcely been started, but sufficient progress has been made in this direction to point the way unmistakably.